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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,589	07/20/2006	Tohru Kikuchi	040373-0395	7371

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FOLEY AND LARDNER LLP
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EXAMINER

LE, NHAN T

ART UNIT	PAPER NUMBER
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2618

MAIL DATE	DELIVERY MODE
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12/02/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/586,589	Applicant(s) KIKUCHI, TOHRU	
	Examiner NHAN LE	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,6,9 and 10 is/are rejected.
- 7) ☒ Claim(s) 3,4,7,8,11 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 2, 5, 6, 9, 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Kisigami et al (US 20040204113).

As to claims 1, 5, 9, Kisigami teaches a transmission directional antenna control system, in which a base station performs the directional control of transmission array antenna elements according to information from a mobile station, said transmission directional antenna control system, providing in the base station (see fig. 4, 23-1, 2,..N, 22-1, 2, ...N, 21, paragraphs 0062-0075): means for forming a transmission multi-beam corresponding to a spread code selected by said mobile station based on a signal spread by different spread codes transmitted from said transmission array antenna elements (see fig. 3, 23-1, 22-1, 21, paragraphs 0062-0075); and means for forming an arbitrary multi-beam other than the transmission multi-beam selected by said mobile station fig. 3, 23-2, ..N, 22-2,..N, 21, paragraphs 0062-0075).

As to claims 2, 6, 10, Kisigami teaches wherein each of signals for SIR measurement is transmitted by different spread codes and different beams in a

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downward transmission to said mobile station from said base station, and a signal of the spread code having good receiving characteristics obtained by measuring said SIR by said mobile station is notified to said base station, and said base station transmits data by a beam corresponding to the spread code notified from said mobile station (see paragraphs 0078, 0079, 0091, 0104, 0105).

Allowable Subject Matter

2. Claims 3, 4, 7, 8, 11, 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claims 3, 7, 11, the applied reference fails to teach providing in said base station: a plurality of receiving array antenna elements; a plurality of transmission array antenna elements; means for weight-synthesizing each of received signals from said receiving array antenna elements by a preset weight coefficient and for generating a receiving multi-beam; means for detecting each of the power values of said receiving multi-beam and receiving information from said mobile station by the receiving multi-beam having the maximum power; means for generating a transmission weight coefficient for transmission data according to information received from said mobile station for each transmission multi-beam corresponding to each of the plurality of transmission array antenna elements; means for generating the transmission weight coefficient of an arbitrary multi-beam other than the multi-beam in which said transmission weight is generated; and means for generating said transmission multi-beam by multiplying these transmission weight coefficients by said transmission data

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and spreading these transmission multi-beams by each of the different spread codes to be supplied to the corresponding transmission array antenna elements, wherein said base station performs the directional control of said transmission array antenna elements according to information from said mobile station as cited in the claim.

As to claims 4, 8, 12, the applied reference fails to teach providing in said base station: a plurality of receiving array antenna elements; a plurality of transmission array antenna elements; means for generating a receiver beam by adaptively determining an arrival direction of each of received signals from said receiving array antenna elements and giving a weight thereto; means for receiving information from said mobile station by the formed receiving beam; means for generating a transmission weight coefficient for transmission data that corresponds to information received from said mobile station for each transmission beam corresponding to each of the plurality of transmission array antenna elements; means for generating the transmission weight coefficient of an arbitrary multi-beam other than the transmission beam in which said transmission weight coefficient is generated; and means for generating said transmission beam by multiplying these transmission weight coefficients by said transmission data and spreading these transmission multi-beams by each of the different spread codes to be supplied to the corresponding transmission array antenna elements, wherein said base station performs directional control of said transmission array antenna elements according to information from said mobile station as cited in the claims.

Conclusion

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3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chin et al (US 6,694,155) teaches downlink beamforming method.

Perdersen et al (US 7,480,278) teaches admission control with directional antenna.

Liang et al (US 7,359,733) teaches beam synthesis method for downlink beamforming in FDD wireless communication system.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Le whose telephone number is 571-272-7892. The examiner can normally be reached on 08:00-05:00 (Mon-Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on 571-272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Nhan T Le/
Patent Examiner, Art Unit 2618
Nhan T. Le